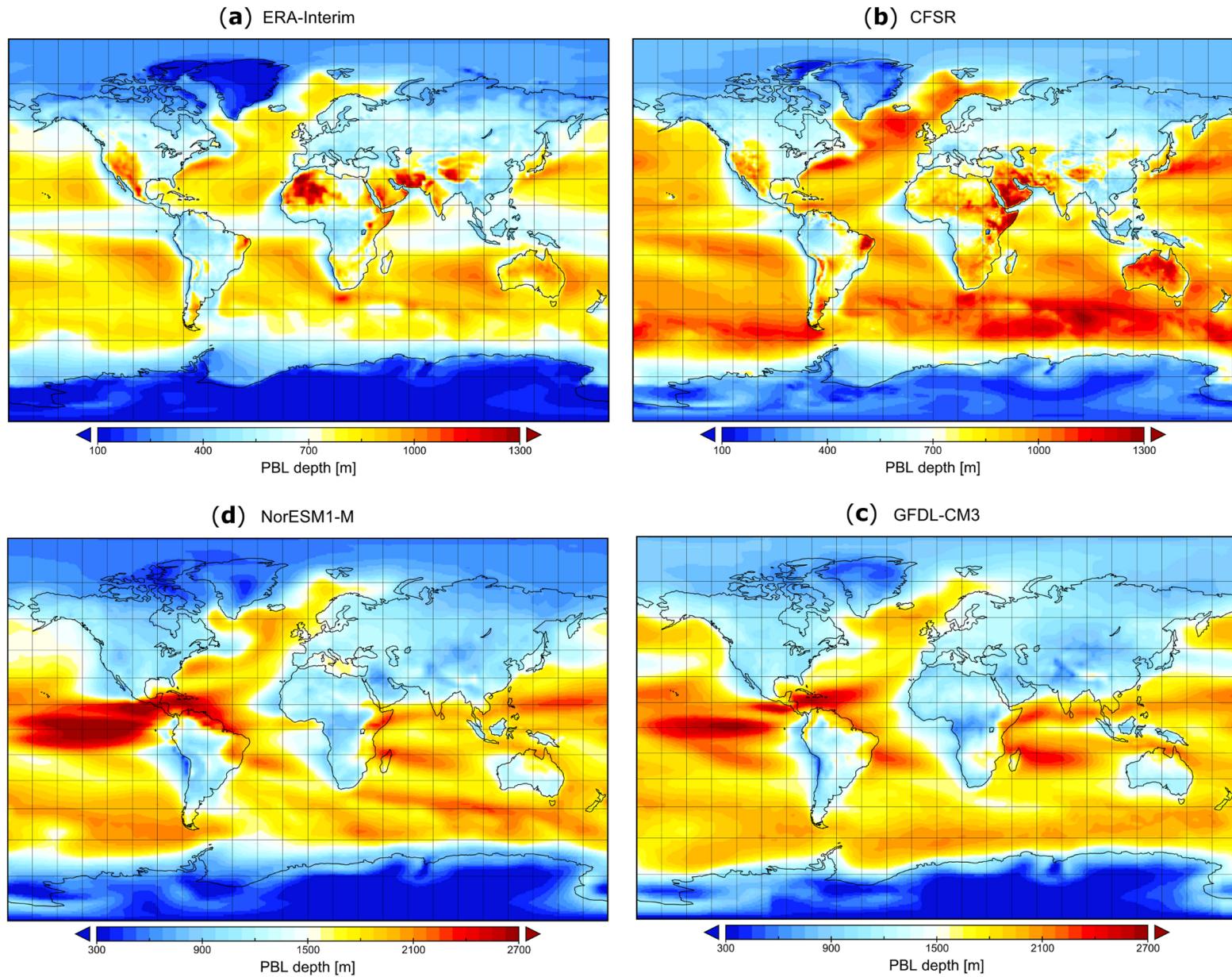
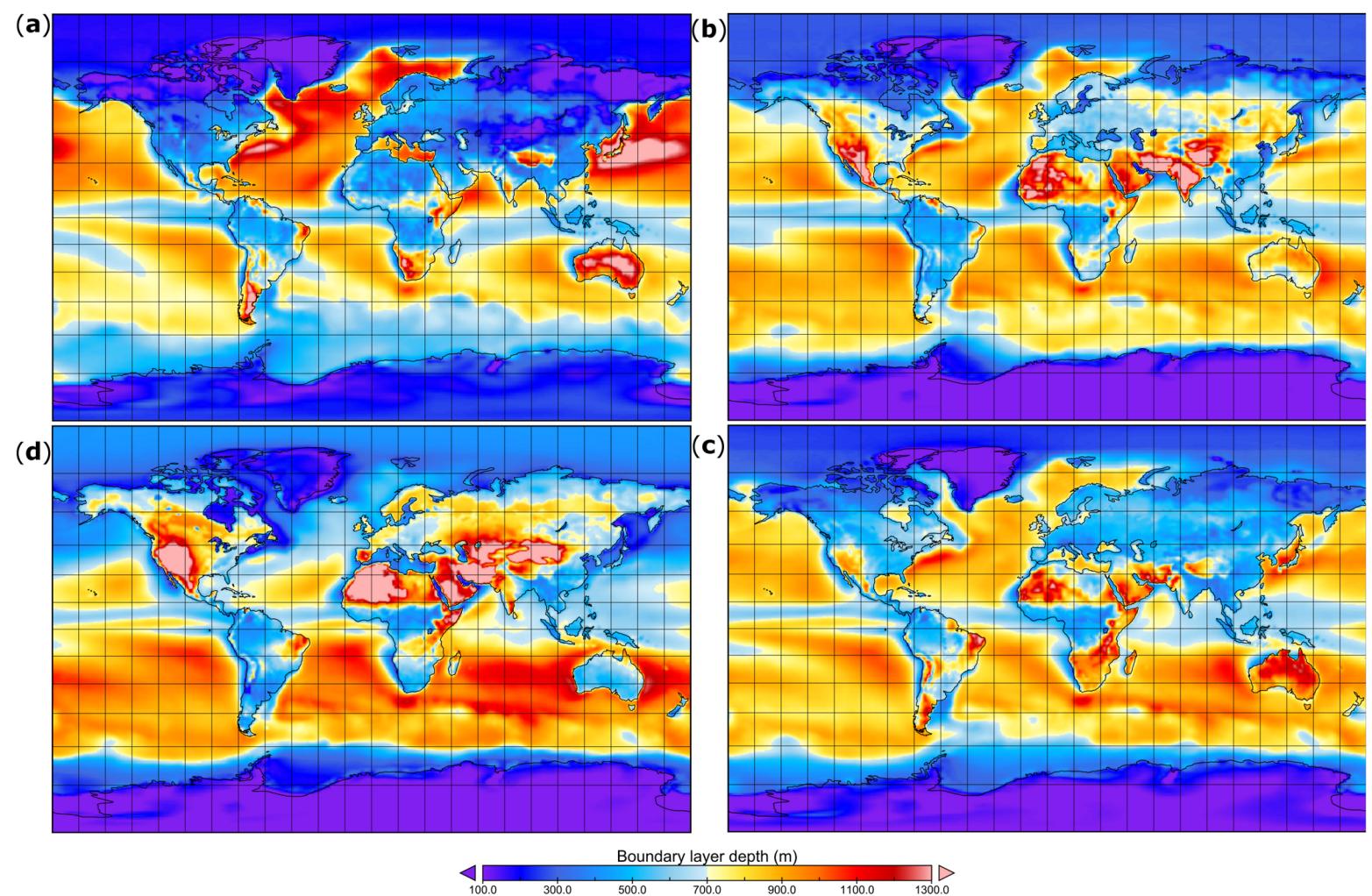


## Supplementary Figures.



**Supplementary Figure 1 | The climatology of the boundary layer depth in climate models and reanalyses.** The climatological, annual-mean boundary layer depth from (a) ERA-Interim reanalysis, (b) CFSR reanalysis, (c) the GFDL-CM3, and (d) the NorESM1-M climate model historical simulations.



**Supplementary Figure 2 | The seasonal cycle in boundary layer depth.** The climatological-mean boundary layer depth for the months: (a) Dec-Jan-Feb, (b) Mar-Apr-May, (c) Sep-Oct-Nov, and (d) Jun-Jul-Aug. The data are taken from ERA-Interim over the period 1979-2014.